Assessing the National Streamflow Information Program

Committee on Review of the USGS
National Streamflow Information Program

Water Science and Technology Board
Division on Earth and Life Studies

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Preface

This report is a product of the Committee on Review of the USGS National Streamflow Information Program. This committee was formed in response to discussions held between the U.S. Geological Survey (USGS) and the National Research Council (NRC) Committee on USGS Water Resources Research. The committee works under the auspices of the Water Science and Technology Board of the National Research Council.

Streamflow data and information is an aspect of water science that profoundly affects people's lives. Flood forecasting and drought management; water supply for agriculture, industry, and cities and towns; maintaining instream flows for game fish and other aquatic species and for canoeing and kayaking; and enforcing legal agreements between states and nations—all depend on the availability of high-quality information about the water elevation and discharge of our rivers and streams.

The U.S. Geological Survey is the primary federal agency charged with acquisition and quality control of raw data and its transformation into usable information. Users range from local consultants and municipalities to whitewater rafters, and from academic institutions to federal agencies such as the U.S. Army Corps of Engineers (USACE) and members of Congress. The water resources discipline of the USGS has more than a century of experience in streamgaging. However, societal needs change, science and technology move forward, and the USGS has evolved as well. For example, satellite data transmission, Doppler radar for precipitation estimates, and improvements in flood forecast models have combined to make USGS streamflow data much more valuable for flood forecasting than in the past.

This report concerns the National Streamflow Information Program (NSIP). The NSIP itself was proposed by the USGS to Congress in 1999. Although the gages that comprise it are not new—some of them have been

around for half a century or more—the concept of a network of gages, other kinds of data sources, and integrated research designed to meet *national* needs is new. The USGS therefore asked the NRC to provide feedback on the nascent program.

The committee heard the first presentations on this topic in October 2001. During the next 24 months, the committee met with numerous experts from within and outside the USGS. We are particularly grateful for the assistance of Edmund D. (Ned) Andrews (USGS), Gregor T. Auble (USGS), Jerad D. Bales (USGS), Thomas R. Carroll (National Weather Service), John E. Costa (USGS), Robert M. Hirsch (USGS), Robert B. Jacobson (USGS), Joseph L. Jones (USGS), Matthew C. Larsen (USGS), Daniel R. Luna (National Weather Service), Gail E. Mallard (USGS), Ronald C. Mason (USACE), Gary P. McDevitt (National Weather Service), J. Michael Norris (USGS), Jim E. O'Connor (USGS), Harold H. Opitz (National Weather Service), and J. Dungan Smith (USGS). Committee members then drafted individual contributions and deliberated as a group to achieve consensus on the content of this report.

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the NRC's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the NRC in making its published report as sound as possible and will ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process.

We wish to thank the following individuals for their review of this report:

J. David Allan, University of Michigan
Roger C. Bales, University of California, Merced
Lawrence E. Band, University of North Carolina-Chapel Hill
Kaye Brubaker, University of Maryland
Emery T. Cleaves, Maryland Geological Survey
Katherine K. Hirschboeck, University of Arizona
Marc Ribaudo, U.S. Department of Agriculture-Economic Research Service

Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations, nor did they see the final draft of the report before its release. The review of this report was overseen by Dr. M. Gordon "Reds"

Wolman, of Johns Hopkins University. Appointed by the National Research Council, Dr. Wolman was responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.

This committee is not the first to comment on the NSIP program and will likely not be the last. We do hope that some of the ideas generated in this report will stimulate further discussions that must take place, not only within the USGS, but also with congressional staff, state and federal agencies, and other generators and users of streamflow data and information. We trust that these discussions will lead to new and better ways to integrate this information into the human and natural world.

David R. Maidment, *Chair*
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